

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

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	:	
LUCIANO F. PAONE,	:	
	:	
Plaintiff,	:	MEMORANDUM
- against -	:	<u>DECISION & ORDER</u>
	:	
BROADCOM CORPORATION,	:	15 Civ. 0596 (BMC) (GRB)
	:	
Defendant.	:	
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	:	
LUCIANO F. PAONE,	:	
	:	
Plaintiff,	:	15 Civ. 0608 (BMC) (GRB)
- against -	:	
	:	
MARVELL SEMICONDUCTOR, INC.,	:	
	:	
Defendant.	:	
-----	X	
	:	
LUCIANO F. PAONE,	:	
	:	
Plaintiff,	:	15 Civ. 0610 (BMC) (GRB)
- against -	:	
	:	
MEDIATEK USA, INC.,	:	
	:	
Defendant.	:	
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	:	
LUCIANO F. PAONE,	:	
	:	
Plaintiff,	:	15 Civ. 0639 (BMC) (GRB)
- against -	:	
	:	
MICROCHIP TECHNOLOGY INC.,	:	
	:	
Defendant.	:	

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	:	
LUCIANO F. PAONE,	:	
	:	
Plaintiff,	:	15 Civ. 0647 (BMC) (GRB)
- against -	:	
	:	
QUALCOMM, INC.,	:	
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Defendant.	:	

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COGAN, District Judge.

Before me are defendants’ motions to dismiss the complaints against them (in whole or in part) in the five captioned actions, all of which allege infringement of U.S. Patent No. 6,259,789 (“the ‘789 patent”).¹ Defendants each move on one or more of the following grounds: That the patent is invalid because it claims patent-ineligible subject matter; that plaintiff is precluded from asserting certain theories of infringement that were rejected in a partial summary judgment order in a prior litigation concerning the same patent and similar accused technology; and that plaintiff has failed to state a claim for indirect or willful infringement. The motions are consolidated for purposes of this decision, and are denied for the reasons set forth below.

¹ Defendant Microchip Technology Inc. has filed an Answer, and moves for judgment on the pleadings pursuant to Fed. R. Civ. P. 12(c). The other defendants move pursuant to Rule 12(b)(6).

BACKGROUND

The '789 patent claims certain computer-implemented methods of encrypting data, as well as certain cryptographic communications systems that employ the same methods. Generally speaking, a method for encrypting and decrypting readable information ("plaintext") is known as a "cipher." The cipher described by the '789 patent, as many do, employs a "symmetric key," which is an additional piece of information that is used as an input to the encryption and decryption algorithm. If the cipher is used for the transmission of encoded data, both the cipher (method) and the key (information) must be known to both sender and receiver.

Digital information takes the form of a long stream of ones and zeros (called bits). When a symmetric key cipher is used to encode digital information, it can encode those bits either in groups, known as "blocks," or one at a time. The former is called a block cipher, and the latter is called a stream cipher. Computer implemented block ciphers have been in wide use in the United States since the 1970s. The '789 patent describes a particular block cipher.

Defendants are technology companies whose hardware products incorporate a widely-used wireless encryption protocol called TKIP. This is not the first case to consider whether TKIP infringes the '789 patent. In 2013, Judge Spatt of this Court rendered a decision, after several years of litigation, concerning plaintiff's claim that certain products sold by Microsoft Corporation, incorporating TKIP, infringed the '789 patent. Judge Spatt granted partial summary judgment to the defendant (Microsoft) on several of plaintiff's theories of infringement. See generally Paone v. Microsoft Corp., 881 F. Supp. 2d 386 (E.D.N.Y. 2012) ("Microsoft II"). The case was resolved, however, by a settlement agreement in which Microsoft did not admit to infringing the '789 patent. As a result, no judgment was entered on Judge Spatt's partial summary judgment order. Although infringement contentions have yet to be filed

in the instant cases, the four claims ultimately at issue in the Microsoft litigation appear to be the ones at issue here as well.

The claims at issue here contain three limitations that are of particular relevance. First, all of the claims are limited to the encryption of data in “block[s],” as described above. Second, each claim requires the use of a particular type of key that the patent calls an “object key.” Third, each of the two method claims at issue in this case (claims 2 and 33) includes the required steps of “modifying the . . . object key” based on a particular input and “repeating the steps of modifying the . . . object key” and then encrypting the current block of plaintext “until the encrypting of blocks of plaintext data is completed.”

In a thoroughly reasoned claim construction order, Judge Spatt construed those terms as follows. He held that a “block” is “a sequence of bits wherein that sequence has a fixed length that does not vary from block-to-block.” Paone v. Microsoft Corp., 771 F. Supp. 2d 224, 244-45 (E.D.N.Y. 2013) (“Microsoft I”). He held that an “object key” must contain both data and methods used to modify that data, and that “the methods contained in the object key are the *only* methods that operate on the key data.” Id. at 232-238 (emphasis in original). He also held that the “repeating” step of the claimed methods requires that “[t]he object key’s data, as it presently exists in the object key at each instance of modification, must be an input into the modification methods of that object key.” Id. at 240-44. Judge Spatt also construed the terms “Random Session Object Key,” “Key Schedule,” and “Block Cipher.”

In granting partial summary judgement of non-infringement, Judge Spatt held that the accused products did not literally infringe the “block” limitation.² He found that although TKIP

² Literal infringement strictly requires that the accused method or device read on “each of the limitations of the asserted claim.” Research Plastics, Inc. v. Federal Packaging Corp., 421 F.3d 1290, 1297 (Fed. Cir. 2005). That is in contrast to infringement via the doctrine of equivalents, which requires only that the accused method or system contain each limitation of the claim or its equivalent, which means that the differences between the two are

is theoretically capable of encoding in blocks of fixed length, it does not typically do so, and plaintiff had presented no evidence of it ever operating in that way in fact. See Microsoft II, 881 F. Supp. 2d at 404. He also held that plaintiff was barred by prosecution history estoppel from asserting that TKIP infringed the “repeating step” limitation by the doctrine of equivalents, because he had given up any broader construction during prosecution.³

Judge Spatt denied summary judgment on other theories; for example, he found that there were questions of fact as to whether the purported “object key” employed in TKIP was modified using only the methods contained within the object key itself, as required by the patent. In part because of the “highly complicated and sophisticated nature” of the technology, id. at 414, Judge Spatt declined to find as a matter of law, based only on the testimony of plaintiff’s expert, that this limitation was not met by TKIP.

DISCUSSION

1. Patent Eligibility

Defendants Broadcom Corporation and Mediatek USA, Inc. (for purposes of this discussion, “defendants”) move to dismiss the complaints against them on the ground that the ‘789 patent is invalid for failing to claim patent-eligible subject matter. See 35 U.S.C. § 101. Defendants argue specifically that the asserted claims are directed to an “abstract idea” and lack an “inventive concept” sufficient to render that idea patent-eligible, in light of the Supreme Court’s recent decision in Alice Corp. Pty. Ltd. v. CLS Bank Int’l, ___ U.S. ___, 134 S. Ct. 2347 (2014).

“insubstantial” to one of ordinary skill in the art. Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 40, 117 S. Ct. 1040 (1997).

³ Prosecution history estoppel “limits expansion of the protection [of a patent] under the doctrine of equivalents when a claim has been distinguished over relevant prior art” before the examiner. Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1578 (Fed. Cir. 1995).

Section 101 of the Patent Act defines four broad categories of patentable inventions: processes, machines, manufactures, and compositions of matter. But § 101 also has well-recognized exceptions. Specifically, whether or not they fall into one of the above categories, laws of nature, physical phenomena, and abstract ideas are not patentable. See generally, e.g., *Diamond v. Diehr*, 450 U.S. 175, 101 S. Ct. 1048 (1981).

The history and impact of the cases that developed these exceptions have been examined in detail by the numerous Federal Circuit and district court decisions that have attempted to apply § 101 in recent years, see, e.g., *California Inst. of Tech. v. Hughes Commc'ns Inc.*, 59 F. Supp. 3d 974 (C.D. Cal. 2014), and I need not reiterate that history here. It is enough to say that for several decades following *Diehr*, few validity challenges raised the issue of eligibility under § 101, focusing instead on other requirements for patentability such as novelty, nonobviousness, and disclosure. See 35 U.S.C. §§ 102, 103, and 112. But in three decisions handed down since 2010, the Supreme Court has placed renewed focus on the § 101 exceptions in the fields of computer programming and natural science. See *Alice*, 134 S. Ct. 2347; *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, ___ U.S. ___, 132 S. Ct. 1289 (2012); *Bilski v. Kappos*, 561 U.S. 593, 130 S. Ct. 3218 (2010).

Bilski concerned what has been referred to as a computer-implemented business method patent, establishing that claims covering a “procedure for instructing buyers and sellers how to protect against the risk of price fluctuations,” 561 U.S. at 596, in other words, how to hedge risk, are not patent-eligible. See *Bilski*, 561 U.S. at 611 (hedging risk is an “abstract idea” under § 101 because it “is a fundamental economic practice long prevalent in our system of commerce and taught in any introductory finance class.”). Building on the doctrine developed in *Bilski* in the context of natural laws, the Court in *Mayo* held that a pharmaceutical dosing method used to

“determine whether a given dosage level is too low or too high” by “apply[ing] natural laws describing the relationships between the concentration in the blood . . . and the likelihood that the drug dosage will be ineffective or induce harmful side-effects” was not eligible. Mayo, 132 S. Ct. at 1294.

There are divergent views on the extent to which Alice, which involved a claimed method of using third-party clearing houses for financial transactions, changed the § 101 landscape. But it is generally agreed that “[o]n one important issue . . . [Alice] went beyond Bilski. The claims in Bilski did not require the use of computers, while the claims in [Alice] did. Significantly, the Court held that the introduction of a computer into the claims did not render the claims in [Alice] patentable.” Loyalty Conversion Sys. Corp. v. Am. Airlines, Inc., 66 F. Supp. 3d 829, 836-37 (E.D. Tex. 2014) (Bryson, J.).

In Mayo, the Supreme Court set forth a framework to distinguish patents that claim ineligible subject matter, or add too little to it, from those that claim patent-eligible applications of abstract ideas and natural laws. First, of course, we must determine whether the claims at issue are in fact directed to an ineligible abstract idea. See DDR Holdings, LLC v. Hotels.com, L.P., 773 F.3d 1245, 1255 (Fed. Cir. 2014) (citing Alice, 134 S. Ct. at 2355). If the patent is directed at an abstract idea, we then consider the limitations of each claim, both individually and as an “ordered combination,” to determine whether the additional limitations transform the nature of the claim into a patent-eligible application. Id. This second step is referred to as the search for an “inventive concept.” Id. Distinguishing claims that recite a patent-eligible invention and claims that add too little to a patent-ineligible abstract concept can be “difficult, as the line separating the two is not always clear.” Id.

Step one of Mayo requires us to “ascertain[] the purpose of the claimed invention.” Hughes, 59 F. Supp. 3d at 980. In the instant case, the parties do not materially dispute how to characterize the subject matter of the ‘789 patent. Defendants characterize it as “directed to block cipher encryption with dynamic keys,” and plaintiff appears to adopt as his characterization of the patent Judge Spatt’s finding that his invention improved upon existing block cipher technology (as it had existed for decades) by “chang[ing] the encryption key for each data block, based on additional, randomly generated data.” Microsoft I, 771 F. Supp. at 227. I need not further refine the terms in which the broad subject matter of the ‘789 patent is defined, because these characterizations are effectively the same. It is enough for purposes of Mayo step one to conclude that the patent is directed at a method or system for encrypting digital information using a symmetric key block cipher with dynamic keys.⁴

Having so defined the broad subject matter of the patent, the case that is most instructive in applying the § 101 analysis, TQP Dev., LLC v. Intuit Inc., No. 12-cv-180, 2014 WL 651935 (E.D. Tex. Feb. 19, 2014) (Bryson, J.), is one that somewhat conflates the two steps of Mayo. For that reason, and because I think that it is not necessary to the eligibility analysis before me, I do not decide whether a patent claiming that subject matter *without* further limitations would be eligible (although I am certain that it would be invalid for other reasons, such as lack of novelty). I therefore turn to step two, the search for an “inventive concept.”

In TQP, which predates the Supreme Court’s decision in Alice by several months, but which considered and followed the Federal Circuit decision that the Supreme Court affirmed, Judge Bryson of the Court of Appeals for the Federal Circuit (sitting by designation in the

⁴ Defendants muddy the waters somewhat by also asserting that the patent “falls well short of describing and claiming an ‘inventive concept’ sufficient to transform *the abstract idea of encryption* into a patent-eligible invention” (emphasis added) and pointing out that the “use of encryption to ensure secure transmission of text has existed for millennia, dating back at least as far as Julius Caesar.” Because defendants elsewhere concede the narrower characterization stated above, I disregard this argument.

District Court for the Eastern District of Texas) denied the defendant's motion for summary judgment on § 101 grounds.

The case concerned infringement of a patent covering an encryption technology claimed with a similar level of specificity to the one here. Judge Bryson characterized the invention – what he called the “fundamental concept” at which the patent was directed – as “the use of a predetermined characteristic of the data being transmitted, specifically the number of blocks of data transmitted, to trigger the generation of new key values used for encryption and decryption in a data communication system.” Id. at *3. Although, as noted above, he somewhat conflated the two steps of Mayo, it is clear that he was addressing the second step when he noted that the claims at issue were limited to

a method for transmitting encrypted data . . . by (1) inputting a seed value to identical pseudo-random number generators in the transmitter and receiver, (2) using the pseudo-random number generators to generate identical new key values at the transmitter and receiver, and (3) changing the key values . . . each time a predetermined number of blocks of data are transmitted.

Id. at *1. These limitations, he found, meant that the patent was “drawn to a very specific method of changing encryption keys” and therefore “it contains an ‘inventive concept,’” id. at *4 (quoting CLS Bank Int’l v. Alice Corp. Pty. Ltd., 717 F.3d 1269, 1283 (Fed. Cir. 2013)).

Judge Bryson recognized the need to prevent artful drafting from “circumvent[ing] the basic exceptions to §101 [by] using, for example, highly stylized language, hollow field-of-use limitations, or the recitation of token post-solution activity.” Id. at *2 (citing CLS Bank, 717 F.3d at 1281). Nevertheless, in his view, the limitations above were sufficient to ensure that “the preemptive effect of the claim is very much diminished,” id. at *4, *i.e.*, that it is patentable.

Of course, TQP predated the Supreme Court's Alice decision by several months. But I do not think that anything in Judge Bryson's reasoning is disturbed by the movement in the law of § 101 – perhaps better characterized as a clarification – that came with the Supreme Court's

decision affirming the Federal Circuit. Tellingly, consistent with the Supreme Court's subsequent decision in Alice, Judge Bryson's decision in TQP in no way relied on the fact that the claimed method was performed using a computer.

Judge Bryson himself seems to have agreed. In Loyalty Conversion, decided for the same court later the same year, he granted judgment on the pleadings, this time invalidating a patent on a system for exchanging loyalty award credits (such as frequent flyer miles). In so doing, however, he criticized a hypothetical blanket rule barring business method patents (which he found the patent before him to be), because it would be too difficult to distinguish "other, legitimate patents that happen to have application to the conduct of business." Loyalty Conversion, 66 F. Supp. 3d at 846. In endorsing eligibility for the latter category, he included within it "patents on methods for encrypting business transactions over the Internet" because they "can involve complex algorithms that are designed to defeat even sophisticated efforts at decryption by hackers and other unauthorized persons." Id. n.7 (citing TQP). He also noted that during oral argument in Alice before the Supreme Court, both the accused infringer and the United States, as *amicus*, "pointed to patents on methods of encryption as examples of technology that are directed to methods of doing business but would not be invalid as unpatentable subject matter." Id.

I therefore read TQP and Loyalty Conversion for the proposition that, despite the various ways in which software patents have been called into question following Alice, a patent on a method of data encryption is not *per se* invalid, as long as it is specific enough.

This brings us to the '789 patent. It is difficult to distinguish the claim limitations – on their face or as construed by Judge Spatt in Microsoft I – from the limitations considered by

Judge Bryson in TQP.⁵ That is in part because defendants make no serious effort to explain why the limitations recited by the ‘789 patent fail to constitute an “inventive concept,” much less why they do not describe a “very specific method of changing encryption keys” that is patent-eligible. Defendants focus instead on the fact that the claims do not recite more than generic hardware.

That is understandable, given that this was the main thrust of the holding of Alice, but it misses the point. Just as here, the patent at issue in TQP contained what amounts to a dynamic key block cipher, and its limitations (at least, the ones that were considered by the court) amounted to a requirement that the cipher be capable of changing its encryption key every time a fixed number of blocks were transmitted. Simply put, if that limitation is sufficient to confer patentability, I do not see how the claim limitations contained in the ‘789 patent could be said to add less. In that regard, this case is not at all analogous to those in which a claim is ineligible because it is directed at accomplishing an intangible result by the use of software, but lacks sufficient specificity as to how that result is to be accomplished. Cf. Internet Patents Corp. v. Active Network, Inc., 790 F.3d 1343, 1348 (Fed. Cir. 2015) (claim directed at “the idea of retaining information in the navigation of online forms” is not rendered eligible by limitation requiring “maintaining the state” of an online form when the limitation “describes the effect or result dissociated from any method by which maintaining the state is accomplished”).

Defendants apparently urge me to ignore the ‘789 patent’s many limitations, arguing that courts “have repeatedly invalidated encryption patents under § 101” in light of Alice, but they mischaracterize the cases on which they rely in support of this assertion. In Walker Digital, LLC

⁵ Although, as discussed further below, neither side is bound by Judge Spatt’s Markman rulings, I can think of no reason not to consider those rulings when conducting a § 101 analysis. Prior claim construction rulings involving the same patent, even when they are entitled to preclusive effect, “will serve as persuasive authority.” Teva Pharm. USA, Inc. v. Sandoz, Inc., 135 S. Ct. 831, 839-40 (2015) (citation omitted). As Judge Bryson noted in a later decision in TQP, prior constructions of the same patent “are entitled to substantial weight,” and courts should “not depart from those constructions absent a strong reason for doing so.” TQP Dev., LLC v. Intuit Inc., No. 12-cv-180, 2014 WL 2810016, at *6 (E.D. Tex. June 20, 2014).

v. Google, Inc., 66 F. Supp. 3d 501 (D. Del. 2014), for example, the court held ineligible two patents it viewed as being directed to “the basic concept of controlled exchange of information about people as historically practiced by matchmakers and headhunters,” id. at 508, because it found that the patents’ limitations were not sufficient to supply an inventive concept to that abstract idea. With reference to those limitations, the court found that “all of these steps could be performed (and have been performed) by human beings interacting with one another prior to the filing of the [] patent.” Id. at 508-09. Among other limitations, one of the two patents in suit included a dependent claim reciting the added step of “authenticating authorship” of one party’s information by “executing a cryptographic operation using a cryptographic key.” Id. at 512. Notably, this limitation did not place any limit on what *kind* of cryptographic method would be used – in fact, the court noted that this limitation could “include something like the type of substitution cipher one might find in a newspaper (A=T, B=U, etc.).” Id. at 513.

Walker, in my view, actually says nothing about the patentability of the cryptographic method itself. To read the case that way would be no different than saying that because “[s]tating an abstract idea while adding the words ‘apply it with a computer’” does not confer eligibility, Alice, 134 S. Ct. at 2358, we must draw the conclusion that “a computer” is not patentable. That is an untenable reading of Alice.

In Intellectual Ventures II LLC v. JP Morgan Chase & Co., No. 13-cv-3777, 2015 WL 1941331, at *12 (S.D.N.Y. Apr. 28, 2015), the court held invalid a patent directed at a method of post-distribution protection of intellectual property that claimed the steps of “(1) encrypting portions of data; (2) distributing the encrypted data; and (3) controlling access to decrypted portions of the distributed data by applying various, unspecified rules defining access rights.” Id. at *12. It was not disputed that the first two steps were routine, and Judge Hellerstein’s analysis

(which I believe was correct) concluded that the claimed third step swept too broadly because it encompassed “all manners” of “controlling post-distribution access to decrypted data.” Id. at *14 n.7. Just as is true of Walker, the fact that the patent’s claimed method, in one of its forms, involved the use of encryption, and was held to be abstract, says nothing about whether a particular method of encryption is patentable.

The same can be said of the representative claim at issue in Fidelity Nat’l Info. Servs., Inc. v. DataTreasury Corp., CBM2014-00021, 2015 WL 1967328 (P.T.A.B. Apr. 29, 2015), which was “directed to the underlying idea of transferring information from one location to another where the transferred information is unreadable without a secret decoder key.” Id. at *7. Tellingly, the Board did not hold otherwise, for although it noted that “[e]ncryption of data as a security measure” was not sufficient to supply an inventive concept to the underlying abstract idea, id., the Board recognized the distinction between a recitation of encryption “in general” and a patent directed at the “very specific encryption method” claimed in TQP. Id. at *8 (citing 2014 WL 651935, at *7-14).

In short, it is of no moment that “[e]ncryption, in general, represents a basic building block of human ingenuity that has been used for hundreds, if not thousands, of years.” Id. at *8. That is because the ‘789 patent does not claim a process that can or does *involve* the encryption of data for some purpose that is otherwise abstract. Rather, it claims a specific method of doing so.

Defendants make several additional arguments that are similarly misplaced. First, they contend that the ‘789 patent should be deemed invalid under § 101 because it is drafted “so broadly as to preempt both known and unknown uses of block cipher encryption,” *i.e.*, it risks preemption of “a significant portion of the field of cryptography.” I note at the outset that this

contention is ironic, because these defendants also argue that the patent does not cover TKIP, a widely used encryption technology, in light of Judge Spatt’s claim construction and summary judgment rulings. Of course, defendants are entitled to make these arguments in the alternative, but Judge Spatt’s rulings would be instructive whether defendants had chosen to rely on them in this litigation or not. If Judge Spatt has construed the patent correctly – and I see no reason to think, at this stage, that he has not – I do not see how it can be said to preempt the field of cryptography. See Hughes, 59 F. Supp. 3d at 996 (finding no preemption concern where claims contained limitations requiring “irregular repetition of message bits and the use of a prior parity bit for calculating a subsequent parity bit,” the algorithm “does not describe a preexisting relationship but rather sets forth unconventional steps for achieving error correction,” and the patent as a whole “capture[s] only one effective form of error correction”).

Even more generally, I reject the argument that the ‘789 patent is analogous to the vast majority of the patents not involving encryption that have been held invalid under § 101 in light of the Alice decision. For the most part, these decisions reflect the Supreme Court’s clarification that a method of “organizing human activity,” 134 S. Ct. at 2356, is not eligible subject matter just because it is performed on a computer. See TQP, 2014 WL 651935, at *6 (citing Bilski, 130 S. Ct. at 3234 (Stevens, J., concurring)).

As the Federal Circuit has acknowledged, at least one central thrust of the Supreme Court’s recent § 101 jurisprudence is to avoid monopolization of business methods. Cf., e.g., Content Extraction & Transmission LLC v. Wells Fargo Bank, N.A., 776 F.3d 1343, 1347 (Fed. Cir. 2014) (“The concept of data collection, recognition, and storage is undisputedly well-known. Indeed, humans have always performed these functions. And banks have, for some time, reviewed checks, recognized relevant data . . . and stored that information in their records.”);

DietGoal Innovations LLC v. Bravo Media LLC, 33 F. Supp. 3d 271, 284 (S.D.N.Y. 2014)

(holding that “selecting meals that align with the user’s individual preferences and nutritional goals . . . and calculating the dietary impact of the addition or subtraction of certain foods (for example, by determining how many calories you will save by swapping out French fries for broccoli)” are “conventional and quotidian tasks” performed without the aid of technology by, inter alia, “parents planning meals for their children”), aff’d, 599 F. App’x 956 (Fed. Cir. 2015).

Indeed, in DDR Holdings, 773 F.3d at 1248, the Federal Circuit found a patent “directed to systems and methods of generating a composite web page that combines certain visual elements of a ‘host’ website with content of a third-party merchant” eligible, but distinguished the bulk of post-Alice decisions as those in which “abstract ideas are plainly identifiable” because the claims at issue “in substance were directed to nothing more than the performance of an abstract business practice on the Internet or using a conventional computer.” Id. at 1256 (distinguishing Ultramercial, Inc. v. Hulu, LLC, 772 F.3d 709 (Fed. Cir. 2014); buySAFE, Inc. v. Google, Inc., 765 F.3d 1350 (Fed. Cir. 2014); Accenture Global Servs., GmbH v. Guidewire Software, Inc., 728 F.3d 1336, (Fed. Cir. 2013); and Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Canada (U.S.), 687 F.3d 1266 (Fed. Cir. 2012)).

As Judge Bryson observed in TQP, these cases do not require that an encryption patent be deemed ineligible – to the contrary, “[u]pon close inspection . . . it becomes evident that the similarities between those cases and the instant case [concerning an encryption method] are superficial.” 2014 WL 651935, at *6. Judge Bryson concluded that “[i]n most of those cases a computer was used to perform steps that are commonly performed without a computer,” but that the encryption patent before the court “involve[d] a way of making computer communication

itself more effective by making that communication more secure.” Id. at *7. The same is clearly true of the one at bar.

I must address one further aspect of the Alice decision before I can conclude that the ‘789 patent covers eligible subject matter. There have been cases decided since Alice that can arguably be read to suggest that software patents as an entire category are no longer within the scope of § 101. The Court in Digitech Image Techs., LLC v. Elecs. for Imaging, Inc., 758 F.3d 1344 (Fed. Cir. 2014), for example, invalidated claims describing a digital image processor in part because “[i]f a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory.” Id. at 1351 (quoting Parker v. Flook, 437 U.S. 584, 98 S. Ct. 2522 (1978)). And, of course, that is the only thing that software does. See Hughes, 59 F. Supp. 3d at 987. But I agree with the court in Hughes that it would be too extreme to read § 101 as excluding all software. See id. at 985 (noting that Alice “seems to acknowledge that software may be patentable if it improves the functioning of a computer” and that Congress, by enacting the America Invents Act, has endorsed software patents generally). In fact, any doubt that Hughes is correct on this point should be put squarely to rest by the Federal Circuit’s subsequent decision in DDR Holdings, which of course concerned a purely intangible software invention.

For the same reason, I reject defendants’ argument that the ‘789 patent claims ineligible subject matter because encryption fails the well-known “pencil and paper” and “machine or transformation” tests set forth in the § 101 cases that predate Alice. Although these tests retain a valid place in § 101 doctrine, I agree with those courts that have rejected the inflexible *per se* application of them in the context of a software patent, because (in theory, at least) that would have the effective result of invalidating all software patents. As for the “pencil and paper”

approach, I think the better view of Alice is that this test is useful as “a stand-in for another concern: that humans engaged in the same activity long before the invention of computers.” Id. at 995 (rejecting pencil-and-paper analysis in the area of error correction codes because such codes “were not conventional activity that humans engaged in before computers, and the codes do not become conventional simply because humans can do math”).

Reflecting a related concern, in TQP, Judge Bryson rejected the notion that the claimed encryption method was a “mental process” ineligible under Gottschalk v. Benson, 409 U.S. 63, 93 S. Ct. 253 (1972), because “the invention involves a several-step manipulation of data that, except perhaps in its most simplistic form, could not conceivably be performed in the human mind or with pencil and paper.” 2014 WL 651935, at *4.

Judge Bryson also flatly rejected the machine-or-transformation test in terms that, at least as far as the application to this case is concerned, speak for themselves:

In the case of an invention in the field of encryption . . . the entire object of the invention is to transform data from one form into another In that setting, it does not make sense to say that the transformation of data . . . cannot qualify as a patent-eligible invention, because that is what the field of cryptology is all about.

Id. at *5.

In sum, it seems to me that it would require an overly broad view of the Supreme Court’s § 101 jurisprudence to find that a patent directed at a method of encryption does not claim eligible subject matter *per se*. This is not to say that a patent on a method of encryption that is not specific enough to claim more than the idea of encryption, or that fails any other requirement of patentability, should not be invalidated. It is simply to say that defendants have failed to show that this one should be.

II. Collateral Estoppel

All five defendants move to dismiss plaintiff's claim of infringement to the extent that it asserts literal infringement of claims 24 and 34 of the '790 patent, and infringement of claims 2 and 33 by the doctrine of equivalents. As discussed above, Judge Spatt, in granting partial summary judgement of non-infringement in the Microsoft litigation, held that the accused product (which also employed the TKIP standard) did not literally infringe the "block" limitation of claims 24 and 34 because there was no evidence that it had the capability "to form equal length 'blocks'" as that limitation required. Microsoft II, 881 F. Supp. 2d at 404. He also held that plaintiff was barred from asserting that TKIP infringed the "repeating step" limitation of claims 2 and 33, which requires that the "object key" be modified in each instance from its current state, and not from its original state, as a result of prosecution history estoppel.

Defendants argue that collateral estoppel bars plaintiff from asserting these theories of infringement here. Collateral estoppel, also known as issue preclusion, requires the party seeking to invoke it to show that

(1) the identical issue was raised in a previous proceeding; (2) the issue was actually litigated and decided in the previous proceeding; (3) the party [against whom preclusion is invoked] had a full and fair opportunity to litigate the issue; and (4) the resolution of the issue was necessary to support a valid and final judgment on the merits.

Westchester v. U.S. Dep't of Hous. & Urban Dev., 778 F.3d 412, 417 (2d Cir. 2015).⁶

It is the last of these four elements that is disputed in this case. Despite the apparent clarity of the language, finality for purposes of this analysis turns out to be an elusive concept. In the Second Circuit, a flexible view of finality dates back at least to Judge Friendly's decision in Lummus Co. v. Commonwealth Oil Ref. Co., 297 F.2d 80 (2d Cir. 1961):

⁶ The Federal Circuit applies the law of the regional circuit to the issue of collateral estoppel. See Bayer AG. v. Biovail Corp., 279 F.3d 1340, 1345 (Fed. Cir. 2002).

Whether a judgment, not ‘final’ in the sense of 28 U.S.C. § 1291, ought nevertheless be considered ‘final’ in the sense of precluding further litigation of the same issue, turns upon such factors as the nature of the decision (i.e., that it was not avowedly tentative), the adequacy of the hearing, and the opportunity for review. ‘Finality’ in the context here relevant may mean little more than that the litigation of a particular issue has reached such a stage that a court sees no really good reason for permitting it to be litigated again.

Id. at 89; see also Zdanok v. Glidden Co., Durkee Famous Foods Div., 327 F.2d 944 (2d Cir. 1964); ePlus, Inc. v. Lawson Software, Inc., 789 F.3d 1349, 1371 (Fed. Cir. 2015) (O’Malley, J., dissenting) (recognizing Zdanok as Second Circuit law).

This line of cases apparently reflects the approach taken by the Restatement (Second) of Judgments § 13 (1982), under which a final judgment for purposes of issue preclusion includes “any prior adjudication of an issue in another action that is determined to be sufficiently firm to be accorded conclusive effect.” See Kay-R Elec. Corp. v. Stone & Webster Const. Co., 23 F.3d 55 (2d Cir. 1994); United States v. McGann, 951 F. Supp. 372, 380 (E.D.N.Y. 1997) (noting “distinctive resonance” between the Lummus line of cases and the Restatement approach).

But the flexibility of the Restatement approach only goes so far. Indeed, even while acknowledging the expansive view of collateral estoppel embraced by Lummus and the Restatement, some courts have been strict in requiring that an order be appealable before it is entitled to preclusive effect. See, e.g., Avondale Shipyards, Inc. v. Insured Lloyd’s, 786 F.2d 1265 (5th Cir. 1986) (citing, *inter alia*, Acha v. Beame, 570 F.2d 57 (2d Cir. 1978)).

More recently, in Kay-R Electric, the Second Circuit (applying Lummus and the Restatement) held that a *denial* of summary judgment was not entitled to preclusive effect, principally because it was not subject to review (as noted above, one of the factors articulated by the Court in Lummus). See Kay-R Elec. Corp., 23 F.3d at 59. It seems to me that this reasoning applies with equal force to a partial grant of summary judgment that forms the basis for a settlement. I am cognizant of the concern expressed by some courts that by declining to give

preclusive effect to pre-settlement summary judgment, a strategic escape is created for a losing party on an interlocutory motion, especially if (as here) he is a repeat player. See Siemens Med. Sys., Inc. v. Nuclear Cardiology Sys., Inc., 945 F. Supp. 1421, 1435 (D. Colo. 1996).

Nevertheless, such considerations are a legitimate part of the settlement calculus, and parties should be free to choose that avenue for resolving their disputes without binding themselves to interlocutory determinations that they had no opportunity to challenge.

This is largely academic, however, because the resolution of this motion does not require me to determine whether appealability should be a *per se* requirement of collateral estoppel or merely an important consideration. In light of the ample authority in support of the more flexible view – which plaintiff himself cites – there appears to be no contention that the analysis simply ends with the realization that no final judgment or appealable order was entered by Judge Spatt. However the appropriate rule is articulated, it is clear that the issue is less well-defined than that. In short, I must assess by reference to the available precedent whether the circumstances of this case lead to the conclusion that preclusion is appropriate.

The Federal Circuit has determined that collateral estoppel is inappropriate in a patent case in a similar posture under Eleventh Circuit law, which generally follows the Restatement approach. See RF Delaware, Inc. v. Pac. Keystone Techs., Inc., 326 F.3d 1255, 1261 (Fed. Cir. 2003). Distinguishing Christo v. Padgett, 223 F.3d 1324 (11th Cir. 2000), the Court in RF Delaware held that prior District Court orders granting partial summary judgment of non-infringement “were not sufficiently firm to have preclusive effect” for three reasons. First, there had been no Markman hearing, and so the Court was skeptical that the parties had been “fully heard” on claim construction. 326 F.3d at 1262. Second, the District Court had “not put the parties on notice that the orders could have preclusive effect.” Id. Third, the District Court had

not “entered a final order approving the proposed settlement” as had been done in Christo, which involved a bankruptcy estate. Id.

Assuming that there is no substantive difference between Eleventh Circuit law and even the more flexible view of Second Circuit law on this point – and I see no reason to conclude that there is one – RF Delaware is instructive. The only fact that would distinguish this case from RF Delaware is that here, oral argument was held on the issue of claim construction.⁷ That seems a minor detail in determining whether to give preclusive effect to an interlocutory order.

Finally, it is worth remembering that the benefit of collateral estoppel to a defendant is that it “protects litigants from the expense and vexation attending multiple lawsuits, conserves judicial resources, and fosters reliance on judicial action by minimizing the possibility of inconsistent decisions.” Remington Rand Corp. v. Amsterdam-Rotterdam Bank, N.V., 68 F.3d 1478, 1485 (2d Cir. 1995) (quoting Montana v. United States, 440 U.S. 147, 153-54, 99 S. Ct. 970, 973-74 (1979)) (internal quotation marks omitted). With that in mind, the stakes to defendants – *i.e.*, the risk of vexation and inconsistent decisions – is low. Judge Spatt’s grant of summary judgment was closely tied to his construction of the “block” and “repeating” limitations, and those constructions are likely to be afforded “substantial weight” in this proceeding. See TQP Dev., LLC v. Intuit Inc., No. 12-cv-180-WCB, 2014 WL 2810016, at *6 (E.D. Tex. June 20, 2014). Indeed, “[g]iven the importance of uniformity in the treatment of a given patent,” it would be “remiss to overlook another district court’s construction of the same

⁷ Defendants argue, citing *dicta* in Dana v. E.S. Originals, Inc., 342 F.3d 1320 (Fed. Cir. 2003), that RF Delaware can be further distinguished on the ground that the issue the defendant sought to preclude was only claim construction, and not the non-infringement finding. Even if that is a correct characterization, it is beside the point for two reasons. First, the question of *finality* does not turn on the issue sought to be precluded, but on the posture at which the first action concluded. Second, both here and in RF Delaware, claim construction and infringement are inextricably intertwined, such that an estoppel with respect to the former would be very likely to operate, in practical effect, as an estoppel with respect to the latter.

claim terms in the same patent” Finisar Corp. v. DirecTV Grp., Inc., 523 F.3d 1323, 1329 (Fed. Cir. 2008) (quotation omitted).

Whether Judge Spatt’s infringement rulings operate here as preclusive or as a basis for *stare decisis*, see Teva Pharm. USA, Inc., 135 S. Ct. at 839-40, I see little practical difference in the impact on these cases. If plaintiff cannot demonstrate that Judge Spatt’s rulings were incorrect or inapplicable to the accused products in this case, *e.g.*, by proffering evidence that distinguishes the accused technologies, then defendants will not be substantially prejudiced by relitigating those issues to whatever extent plaintiff thinks that it is in his interest to pursue them again. On the other hand, if plaintiff does have valid factual or legal grounds for arguing that Judge Spatt’s rulings are incorrect or do not apply, then he should be given an opportunity to present them. I therefore decline to expand the scope of collateral estoppel under the instant circumstances to reach an interlocutory order that is entered prior to settlement.

III. Sufficiency of Indirect and Willful Infringement Allegations

Defendants Broadcom and Mediatek, joined by defendant Qualcomm, Inc., move to dismiss the complaints against them for failure to state a claim to the extent that they allege indirect infringement – *i.e.*, induced or contributory infringement – and that they allege willful infringement. The parties agree, and are correct, that the pleading standard governing these claims is the familiar one set forth in Ashcroft v. Iqbal, 556 U.S. 662, 129 S. Ct. 1937 (2009).

As an initial matter, plaintiff’s indirect infringement claims require an allegation that an underlying act of direct infringement took place. Plaintiff’s allegations that the “end users” of defendants’ accused products infringe the ’789 patent are sufficient. See Conair Corp. v. Jarden Corp., No. 13-cv-6702, 2014 WL 3955172, at *2 (S.D.N.Y. Aug. 12, 2014) (citing In re Bill of Lading Transmission & Processing Sys. Patent Litig., 681 F.3d 1323, 1336 (Fed. Cir. 2012)).

Plaintiff's claims of induced infringement require him to plead that defendants "knew of the patent, knowingly induced the infringing acts, and possessed a specific intent to encourage another's infringement of the patent." Id. at *2 (citing Vita-Mix Corp. v. Basic Holding, Inc., 581 F.3d 1317, 1328 (Fed. Cir. 2009)). Plaintiff's allegations that defendants knew of the existence of the '789 patent and continued to sell a product that infringed it are sufficient to meet the intent requirement at the pleading stage. Id. at *3 (citing Global-Tech Appliances, Inc. v. SEB S.A., 563 U.S. 754, 131 S. Ct. 2060, 2068 (2011)).

Defendants attempt to distinguish Conair on the ground that the products at issue here (computer chips and chipsets) "cannot be used to perform the claimed systems and methods absent integration with another device, such as a computer." This is a distinction without a difference. As Judge Nathan explained in Conair, "[g]iven that coffee drinkers frequently enjoy milk with their coffee, it would be reasonable to infer that [the defendant] intended and expected its customers to use the [accused] milk container attachment that it allegedly included in the coffee machines that it sold." Id. Here, it is reasonable to infer from plaintiff's allegations that defendants intended their chips to be used as they are designed to be used – in a computer.

Plaintiff's claims of contributory infringement require him to allege that "(1) that there was direct infringement, (2) that [defendants] had knowledge of [his] patent, (3) that [defendants] sold components without substantial noninfringing uses, and (4) that the component is a material part of the invention." Id. at *4 (citing Fujitsu Ltd. v. Netgear Inc., 620 F.3d 1321, 1326 (Fed. Cir. 2010)). All that this adds to the pleading requirements for induced infringement is that defendants' products did not have substantial noninfringing uses. Plaintiff has adequately alleged that they do not. It is, of course, difficult to plead a negative with any detail. Thus, while plaintiff's allegation "arguably resembles a legal conclusion . . . numerous post-Iqbal cases

have not required detailed factual allegations in support of a plaintiff's claim that a defendant's product lacks substantial noninfringing uses." Id. (collecting cases).

Plaintiff's claim of willful infringement requires him to plead that defendants were "aware of the asserted patent but acted despite an objectively high likelihood that [their] actions constituted infringement of a valid patent." 3D Sys., Inc. v. Formlabs, Inc., No. 13-cv-7973, 2014 WL 1904365, at *6 (S.D.N.Y. May 12, 2014) (citing i4i Ltd. P'ship v. Microsoft Corp., 598 F.3d 831, 860 (Fed. Cir. 2010)). Defendants argue that plaintiff has failed to "demonstrate a link" between their knowledge of the patent and the risk of infringement, id. at *6, in light of Judge Spatt's grant of summary judgment on certain theories of infringement. Defendants cite no authority, and I am aware of no authority, that would support this argument. As far as the Microsoft litigation, plaintiff's notice letter informed defendants that "Microsoft ultimately settled the case by taking a license to the '789 patent shortly before trial, after unsuccessfully challenging validity, infringement, and damages issues over the course of more than six years." If that is not enough to create an "objectively high likelihood" that the patent reads on TKIP under some theory, it is difficult to image what would.

CONCLUSION

For the foregoing reasons, defendants' motions to dismiss are denied. Pre-trial proceedings shall continue as directed by Judge Brown.

SO ORDERED.

U.S.D.J.

Dated: Brooklyn, New York
August 19, 2015

